

CD-323M/324M DPF-J5020 SERVICE MANUAL

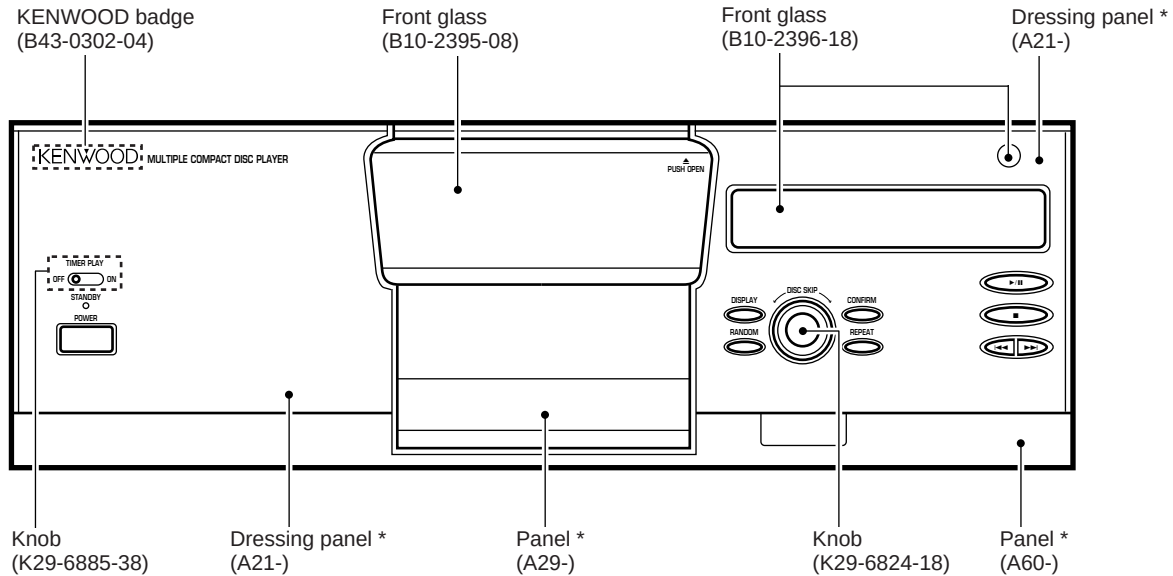
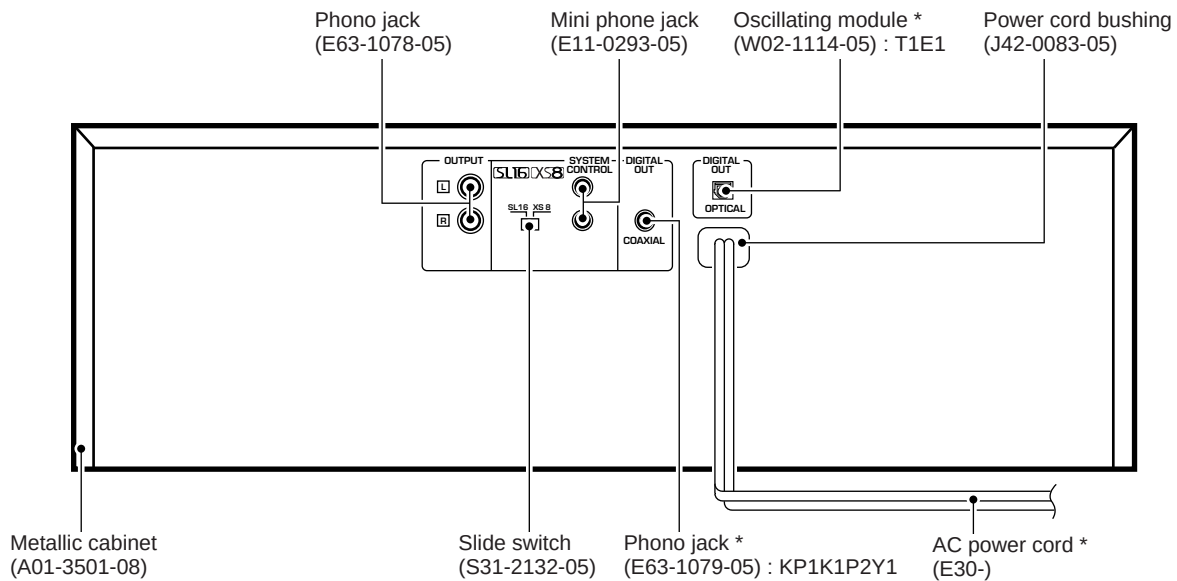


Illustration is CD-324M/DPF-J5020.



*** Refer to parts list on page 17.**

In compliance with Federal Regulations, following are reproductions of labels on, or inside the product relating to laser product safety.

KENWOOD-Corp. certifies this equipment conforms to DHHS Regulation No.21 CFR 1040.10, Chapter 1, Subchapter J.

**DANGER : Laser radiation when open and interlock defeated.
AVOID DIRECT EXPOSURE TO BEAM.**

Refer to CD-223M/DPF-J3010 service manual (B51-5409-00) if require the following items in detail.

- 1) Mechanism operation description.
- 2) Disassembly for repair.

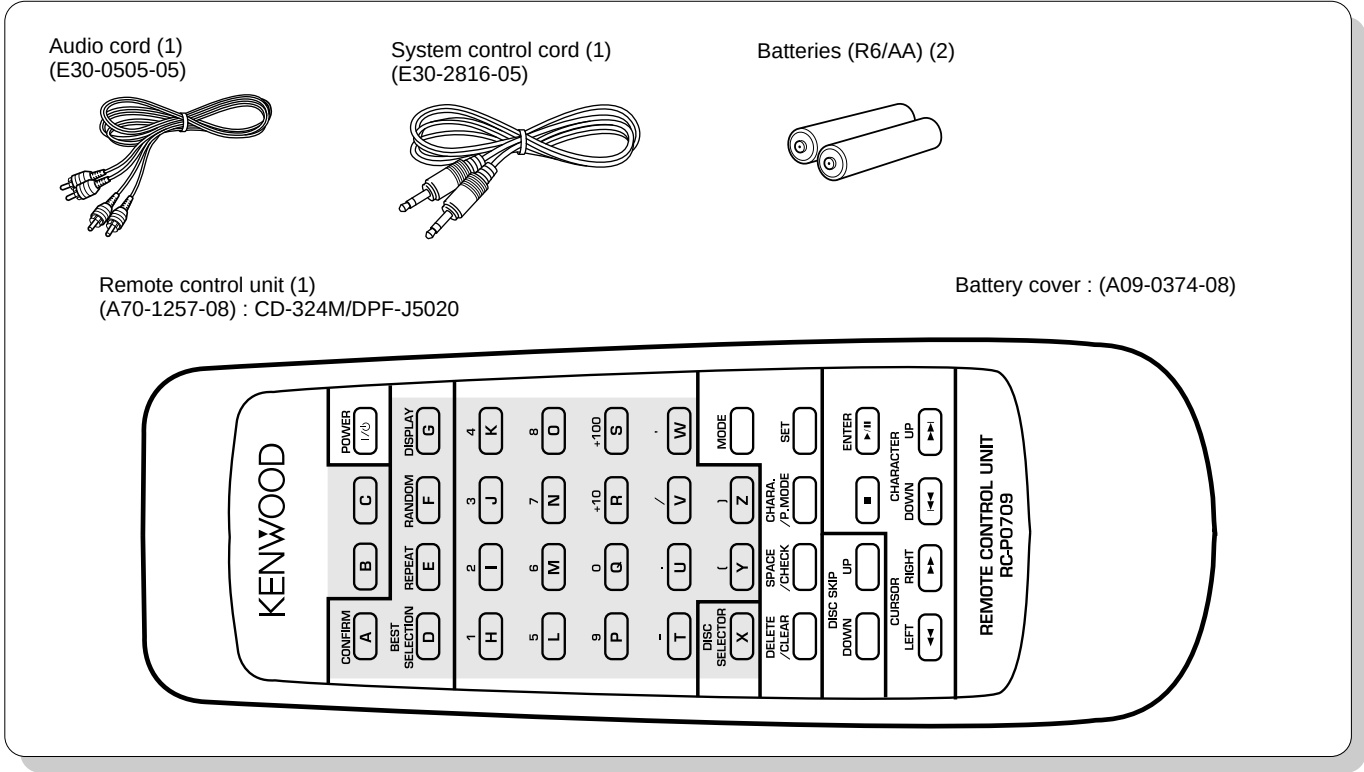
CD-323M/324M/DPF-J5020

CONTENTS/ACCESSORIES/EXTERNAL VIEW

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PC BOARD	9	SPECIFICATIONS	Back cover

Accessories



External view

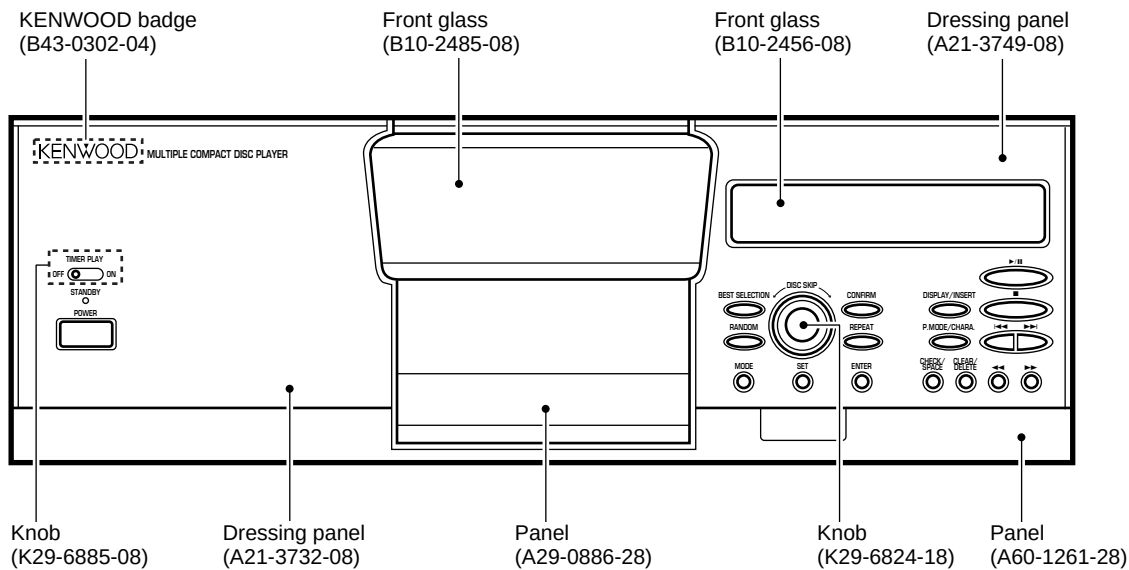


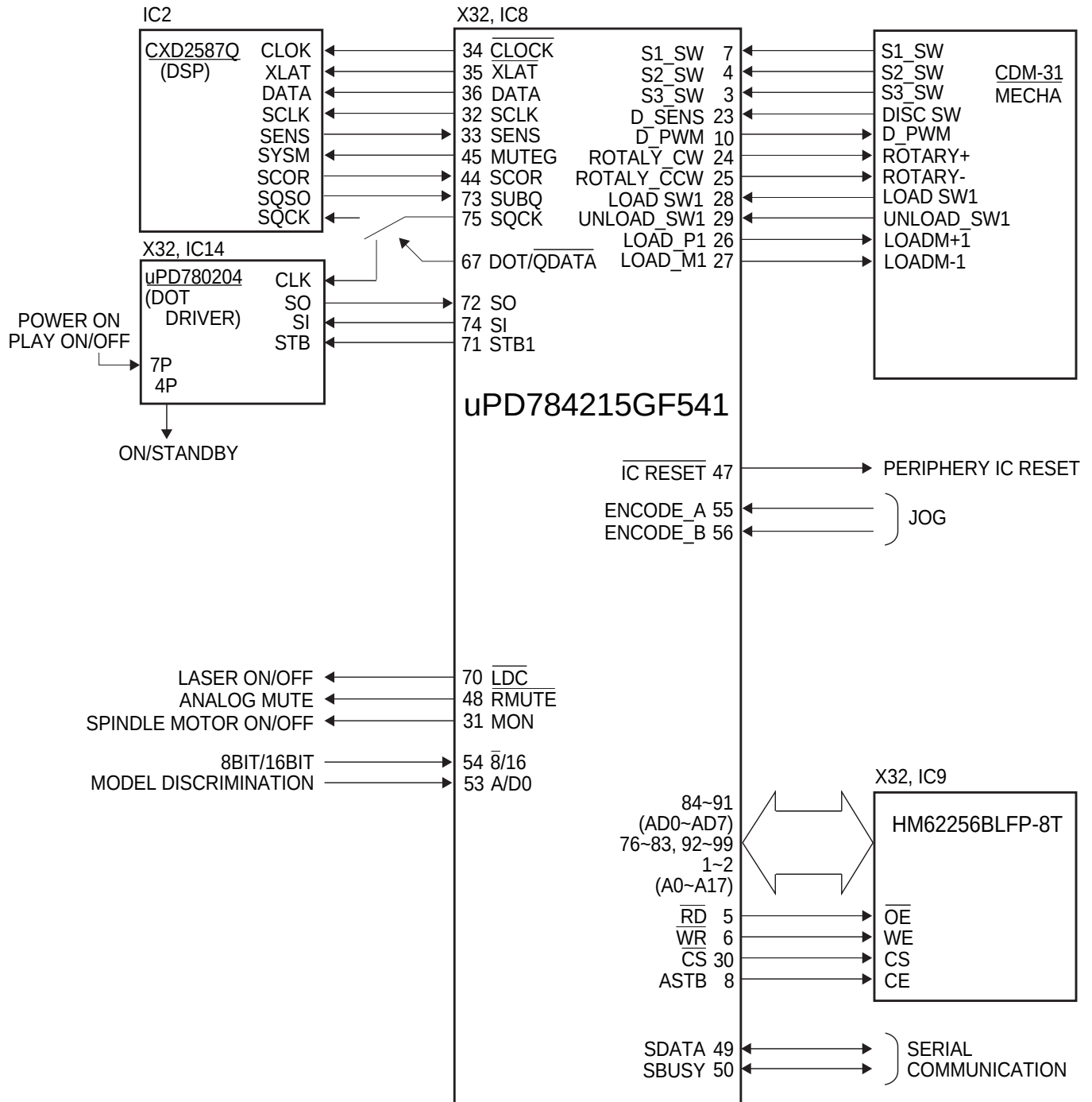
Illustration is CD-323M.

* Refer to parts list on page 17.

CIRCUIT DESCRIPTION

1. Main microprocessor : uPD784215GF541 (IC8)

1-1 Microprocessor periphery block diagram



CD-323M/324M/DPF-J5020

CIRCUIT DESCRIPTION

1-2 Microprocessor pin description (X32, IC8)

Pin No.	Pin Name	I/O	Description
1	A16	O	No connection.
2	A17	O	No connection.
2	NC	–	No connection.
3	S3-SW	I	Mechanism address detector switch.
4	S2-SW	I	Mechanism address detector switch.
5	RD	O	SRAM read strobe.
6	WR	O	SRAM write strobe
7	S1-SW	I	Mechanism address detector switch.
8	ASTB(CE)	O	No connection.
9	VDD	–	Power supply (+5V).
10	+5VPUL	O	Disc sensor PWM output.
11	RTRN	O	No connection.
12	RWR	O	No connection.
13	RWRR	O	No connection.
14-21	L-D0-D7	O	No connection.
22	TEST	–	GND.
23	DISC-SW	I	Disc sensor.
24	ROTARY-CW	O	Mechanism rotary motor (+). H : CCW
25	ROTARY-CCW	O	Mechanism rotary motor (-). H : CW
26	LOADM+1	O	Loading motor (+) for main pickup.
27	LOADM-1	O	Loading motor (-) for main pickup.
28	LOAD-SW1	I	Loading switch for main pickup.
29	UNLOAD-SW1	I	Unloading switch for main pickup.
30	CS	O	SRAM CS.
31	MON	O	Control port of poor focus works.
32	SCLK	O	Sens serial data read clock.
33	SENS	I	SENS signal input.
34	CLOCK	O	Serial data clock.
35	XLAT	O	CXD2587Q latch.
36	DATA	O	Serial data output.
37	VDD	–	Power supply (+5V).
38, 39	X1, 2	–	Main system clock (12.5MHz).
40	VSS	–	GND.
41	XT2	–	No connection.
42	XT1	I	GND.
43	RESET	I	System reset signal input.
44	SCOR	I	Sub code synchro detection.
45	MUTEG	O	Muting control output. H : MUTE ON.
46	STB2	O	No connection.
47	IC RESET	O	IC reset.
48	RMUTE	O	Analog mute. L : MUTE ON.
49	SDATA	I/O	Serial data signal I/O.
50	SBUSY	I/O	Serial busy signal I/O.
51	AVDD	–	Power supply(+5V).
52	AVREF	–	A/D reference power supply.
53	A/D0	I	Model selector.
54	8/16	I	8/16 bit selector. H:16bit.
55	JOG2	I	Encoder signal A input.

CIRCUIT DESCRIPTION

Pin No.	Pin Name	I/O	Description
56	JOG1	I	Encoder signal B input.
57	DOOR-SW	I	Door open/close detector switch.
58	LOAD-SW2	I	GND.
59	UNLOAD-SW2	I	GND.
60	DISC-SW2	I	Disc2 sensor.
61	AVSS	–	GND.
62	LOADM-2	O	No connection.
63	LOADM+2	O	No connection.
64	AVREF1	–	D/A reference power supply.
65	RXD-R	I	No connection.
66	TXD-R	O	No connection.
67	SQCK/SCK-SW	O	“SQCK,SCK(DOT/DSP clock). L: "DSP."
68	RXD SUB	I	No connection.
69	TXD SUB	O	No connection.
70	LDC	O	Laser on/off. L: Laser diode ON.
71	STB1	O	Strobe signal output to dot driver.
72	S0	I	Data input from dot driver.
73	SQS1	I	Sub code read data input.
74	S1	O	Data output to dot driver.
75	SCK/SQCK	O	Dot driver/sub code read clock.
76-83	A14~7	O	Address output to SRAM.
84-91	D0~7	I/O	SRAM data buss.
92-98	A0~6	O	Address output to SRAM.
99	A15	O	No connection.
100	VSS	–	GND.

1-3 Key matrix

() : IC14 Pin No.

VOLTAGE	KEY RETURN 0 (33)		KEY RETURN 1 (32)		KEY RETURN 2 (31)	
4.166V	323M	CHECK/SPACE	323M	MODE	323M 324M/J5020	BEST SEL. DISPLAY
3.333V	323M	CLEAR/DELETE	323M	SET	RANDOM	
2.5V	323M	FB	323M	ENTER	CONFIRM	
1.666V	323M	FF	REPEAT		323M	DISP/INS
0.833V	DOWN		323M	P.MODE/CHARA	PLAY/PAUSE	
0V	UP		POWER		STOP	

CD-323M/324M/DPF-J5020

CIRCUIT DESCRIPTION

2. FL Microprocessor : UPD780204-038 (X32, IC14)

Pin description

Pin No.	Pin Name	I/O	Description
1	VDD	–	Power supply (+5V)
2, 3	NC	–	No connection.
4	STANDBY	O	Standby LED control
5	LED-A	O	No connection.
6	LED-B	O	No connection.
7	POW-P	I/O	Timer sw on input.
8, 9	NC	–	No connection.
10	RESET	I	System reset input
11, 12	X1, 2	–	Main system clock. (5MHz).
13	VSS	–	GND.
14	XT2	–	No connection.
15	XT1	I	GND.
16	VDD	–	Power supply (+5V)
17	SCK	I	Serial clock.
18	SO	O	Data output.
19	SI	I	Data input.
20-24	NC	–	No connection.
25	AVSS	–	GND.
26~30	A/D7~A/D3	–	GND.
31~33	A/D2~A/D0	I	Key return signal input (2~0).
34	AVDD	–	A/D analog power supply.
35	AVREF	–	A/D reference power supply.
36, 37	VSS	–	GND.
38	REM	I	Remote control input. (Except for CD-323M.)
39	STB1	I	Strobe signal input.
40	VSS	–	GND.
41~45	NC	–	No connection.
46	VDD	–	Power supply (+5V)
47	NC	–	No connection.
48~52	P1~5	O	FL control output. 1G (▶■), 2G~16G (1- 1 to 5- 1).
53~57	P6~10	O	FL control output. 2G~16G (1- 2 to 5- 2).
58~62	P11~15	O	FL control output. 2G~16G (1- 3 to 5- 3).
63, 64	P16, 17	O	FL control output. 2G~16G (1- 4 to 2- 4).
65~69	P35~31	O	FL control output. 2G~16G (5- 7 to 1- 7).
70~74	P30~26	O	FL control output. 2G~16G (5- 6 to 1- 6).
75~78	P25~22	O	FL control output. 2G~16G (5-5 to 2-5).
79	VLOAD	–	Negative power supply (-37.5V).
80	P21	O	FL control output. 2G~16G (1-5).
81, 82	P20, 19	O	FL control output. 2G~16G (5-4 , 4-4).
83	NC	–	No connection.
84	P18	O	FL control output. 2G~16G (3-4).
85~92	9G~16G	O	FL control output. 9G~16G.
93~100	8G~1G	O	FL control output. 8G~1G.

CIRCUIT DESCRIPTION

3. TEST MODE

INPUT KEY	PROCEDURE	DISPLAY
Insert the AC plug to the wall outlet with pressing the SKIP-DOWN key.	INITIAL CONDITION • Disc No.1 moves to the center and clamp it. • Clear the memory of the SRAM. • Door opens. • Set the switch of TIMER ON PLAY to ON. • Set the switch of SYSTEM CONTROL to XS8.	INITIAL OK!! MECH. INITIAL INITIAL NG TIMER, NG SER, NG TEST ON
Insert the AC plug to the wall outlet with pressing the REPEAT key	CIRCUIT ADJUSTMENT • Open the door and load the disc to the Disc No.1. • Close the door. The unit changes to test mode "05" after clamping the disc.	
PLAY/PAUSE	Change the mode 05(tracking-on) and 03 (tracking-off) alternately by the PLAY key.	05 1 : 23 03 2 : 34
STOP	Stop the function.	00
UP	The pickup travels outwards.	MOTOR FORWARD
DOWN	The pickup travels inwards.	MOTOR REVERSE
RANDOM	Shows the result of self-adjustment. <pre> 07 EF/FB ← ↓ 08 TG/FG ↓ 09 FE/RF ↓ 10 TE/VC — </pre> Mode changes alternately by the RANDOM key.	07 XXX:XXX 08 XXX:XXX 09 XXX:XXX 10 XXX:XXX NG : blinking
DISPLAY	—	shows niagara mode
POWER	Check the transmission signal (Disc No.1 and Track No.99) of the remote controller. *DPF-J5020, CD-324M only.	
REPEAT	Playback PGM signal of the Track No.7,13,23,30,34 and 41 in the order. And release	
CONFIRM	Release the test mode.	
(TIMER PLAY SW)	Check the switch position.	TIMER ON, TIMER OFF
(SL16/XS8 SW)	Check the switch position.	16BIT, 8BIT
(TxD port)	Check the SL16-TEXT port. "TxD : H - RxD:L, TxD:L - RxD:H"	
Insert the AC plug to the wall outlet with pressing the UP key.	CHECK THE MECHANISM JAMMING. the order. Clamp the Disc No1,2,100,50,200 and 199 in the order.	
Insert the AC plug to the wall outlet with pressing the RANDOM key.	THE MECHANISM TEST MODE. Display shows NIAGARA until pressing any key.	
PLAY/PAUSE	Change the mode 05 (tracking-on) and 03 (tracking-off) alternately by the PLAY key.	05 1 : 23 03 2 : 34
STOP	Stop the function. Shows the result of self-adjustment. <pre> 07 EF/FB ← ↓ 08 TG/FG ↓ 09 FE/RF ↓ 10 TE/VC — </pre> Mode changes alternately by the STOP key.	07 XXX:XXX 08 XXX:XXX 09 XXX:XXX 10 XXX:XXX NG : blinking
UP	Arm Motor Load operation.	MOTOR LOAD
DOWN	Arm Motor Unload operation.	MOTOR UNLOAD
RANDOM	Rotary Motor Clockwise turning.	MOTOR CW
DISPLAY	Rotary Motor Counterclockwise turning.	MOTOR CCW

CD-323M/324M/DPF-J5020

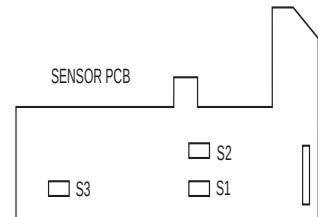
CIRCUIT DESCRIPTION/ADJUSTMENT

CIRCUIT DESCRIPTION

INPUT KEY	PROCEDURE	DISPLAY
POWER	Check the transmission signal(Disc No.1 and Track No.99) of the remote controller. *DPF-J5020, CD-324M only	
REPEAT	Playback PGM signal of the Track No.7,13,23,30,34 and 41 in the order.And release he test mode.	
CONFIRM	Release the test mode.	
(TIMER PLAY SW)	Check the switch position.	TIMER ON , TIMER OFF
(SL16/XS8 SW)	Check the switch position.	16BIT, 8BIT
(TxD port)	Check the SL16-TEXT port. TxD : H → RxD : L, TxD : L → RxD : H	

4. ERROR CODE

DISPLAY	ERROR CONTENTS
MECHA ERROR 01	No input of S3. The original position error of Disc Number.
MECHA ERROR 02	No input of S2. The turning direction error to counterclockwise
MECHA ERROR 03	No input of S1. The turning direction error to clockwise
MECHA ERROR 04	No input of main load sw.
MECHA ERROR 05	No input of main unload sw.



S1-3: Mechanism address detector switch.
There are load and unload switches in the main pickup.

S1 DISC 1-9
S2 DISC 10-99
S3 DISC 100-200

ADJUSTMENT

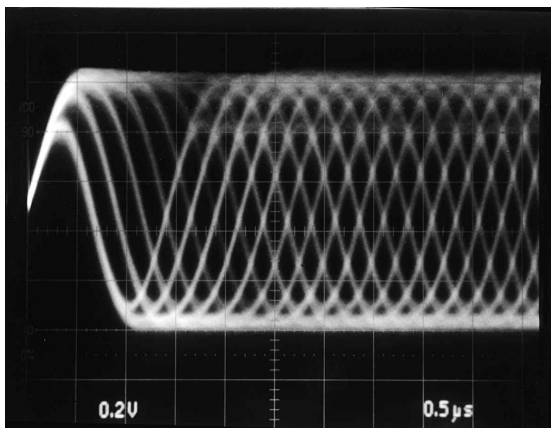
No.	ITEM	INPUT SETTING	OUTPUT SETTING	PLAYER SETTING	ALIGNMENT POINT	ALIGN FOR	FIG.
1. With pressing the RANDOM KEY, turn the power on to enter the test mode. 2. Set the Test disc to Disc NO. 1. 3. Close the door.							
1	FOCUS ERROR BIAS	Test disc Type4 /KTD-02	Connect an oscilloscope as follows. CH1:RF (CN2-1)	Press the PLAY /PAUSE key . Confirm that the display is "05".	FE BIAS VR1	Optimum eye pattern	(d)

Note:

Type 4 disc :SONY YEDS-18 Test Disc or equivalent.

LPF : Around 47kΩ + 390 pF or so.

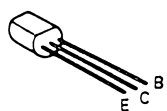
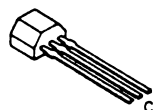
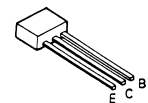
FIG. (d)



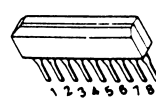
RF signal

- RF signal in test mode (PLAY).
- Perform the tangential and focusing offset are focused into one point on the display. The crossing points above and below the center shall also be looked clearly. (FE BIAS)

2SA954

DTA113ZSA
DTC124ESA
2SA1048
2SC2458UN4212
2SA1309A
2SC3311A

TA8409S



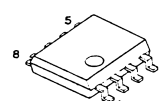
CD-323M (X32-3700-10)									
DESTINATION	COUNTRY	ABB.	UNIT No.	(A)	(B)	(C)	(D)	R81	S23
U.S.A.	K	P1	0-10	NO	YES	NO	NO	NO	YES
CANADA	K	P1	0-10	NO	YES	NO	NO	NO	YES

CD-324M (X32-3700-11)									
DESTINATION	COUNTRY	ABB.	UNIT No.	(A)	(B)	(C)	(D)	R81	S23
U.S.A.	K1	P1	0-11	YES	NO	YES	NO	YES	NO
CANADA	P2	P1	0-11	YES	NO	YES	NO	YES	NO

DPF-J5020 (X32-3702-XX)									
DESTINATION	COUNTRY	ABB.	UNIT No.	(A)	(B)	(C)	(D)	R81	S23
PX	Y1	2-91	NO	YES	NO	YES	NO	YES	NO
U.K.	T1	2-71	YES	NO	YES	NO	YES	NO	YES
EUROPE	E1	2-71	YES	NO	YES	NO	YES	NO	YES

DIGITAL LINE
 SIGNAL LINE
 GND LINE
 +B LINE
 -B LINE

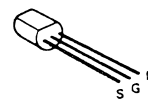
NJM2115M



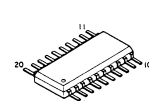
UN5212



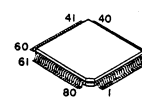
2SK246



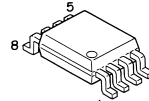
CXA1571M



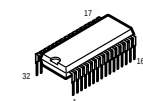
CXD2587Q



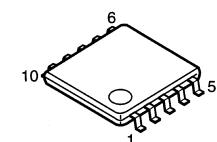
NJM2100M



BA5979S



LB1930M

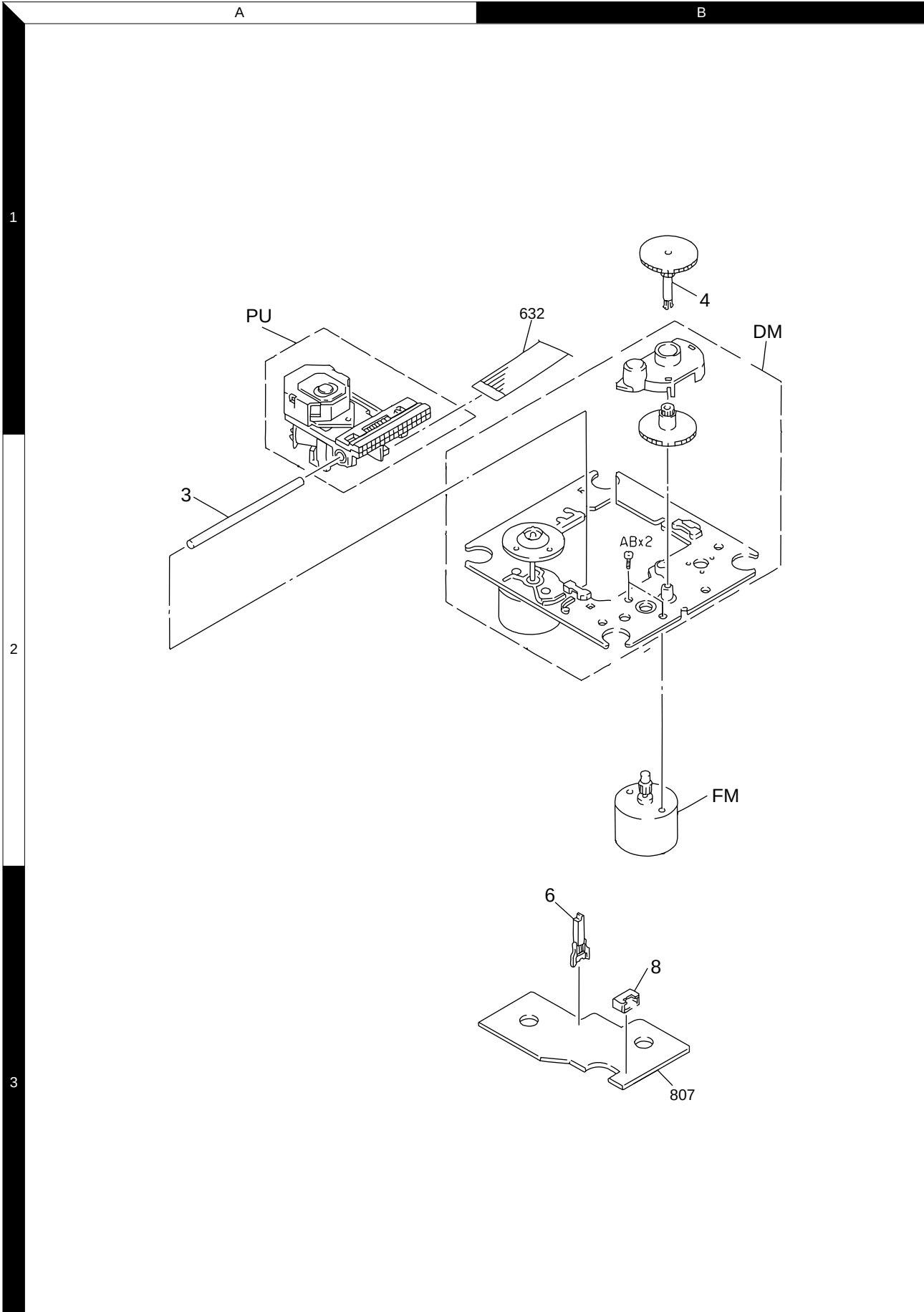


CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). Δ indicates safety critical components. For continued protection against risk of fire, replace only with same type and rating fuse(s). To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

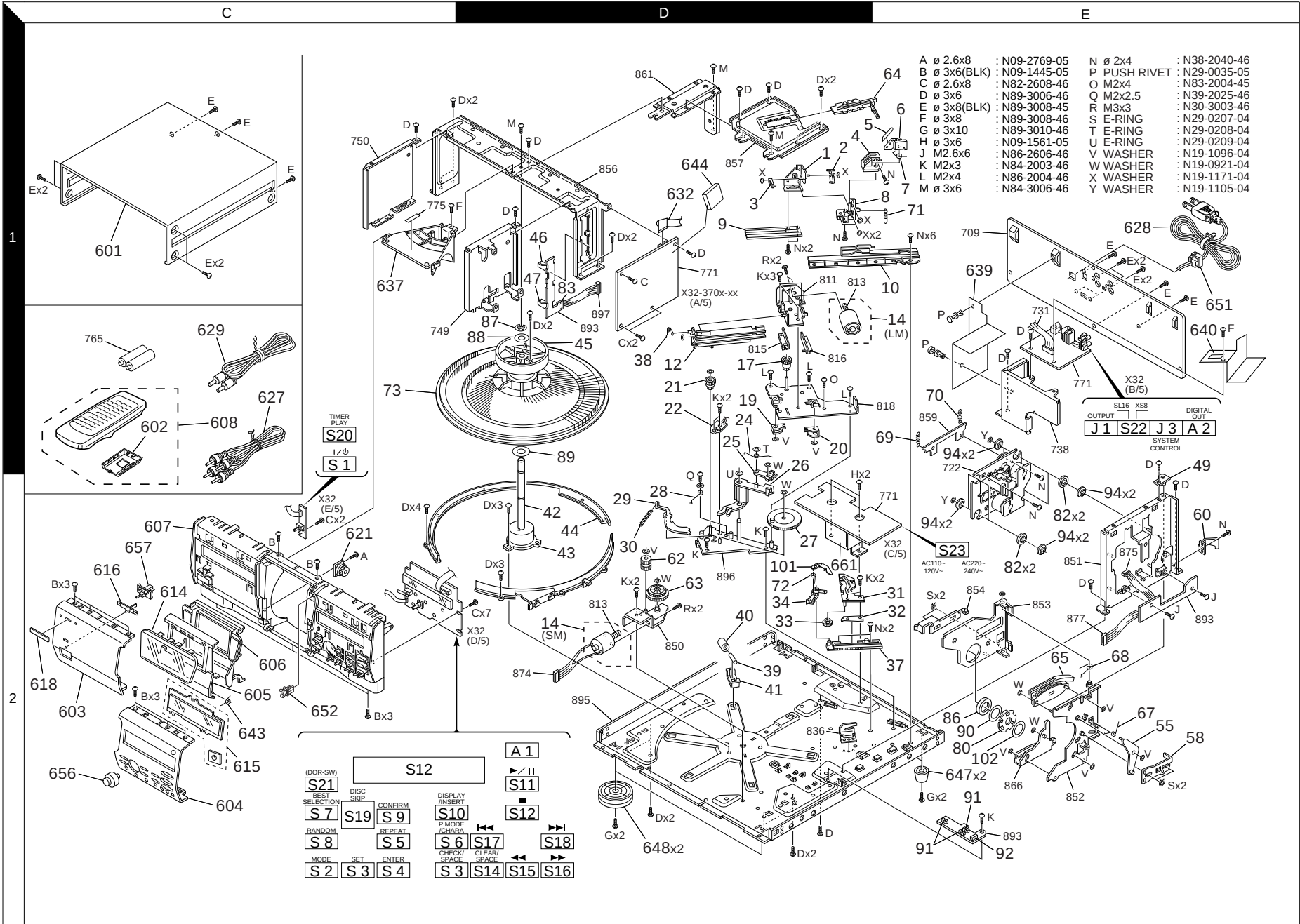
The DC voltage is an actual reading measured with a high impedance type voltmeter with no signal input. The measurement value may vary depending on the measuring instruments used or on the product.

CD-323M/324M/DPF-J5020

EXPLODED VIEW(MECHANISM)



EXPLODED VIEW(UNIT)



* New Parts

Parts without **Parts No.** are not supplied.

Les articles non mentionnés dans le **Parts No.** ne sont pas fournis.

Teile ohne **Parts No.** werden nicht geliefert.

①

Ref. No	Add-ress	New Parts	Parts No.	Description	Desti-nation	Re-marks
CD-323M/324M/DPF-J5020						
601	1C		A01-3501-08	METALLIC CABINET		
602	1C		A09-0374-08	CABINET	K1P2Y1	
602	1C		A09-0374-08	CABINET	T1E1	
603	2C	*	A21-3732-08	DRESSING PANEL	KP1	
603	2C	*	A21-3734-08	DRESSING PANEL	K1P2	
603	2C	*	A21-3735-08	DRESSING PANEL	T1E1	
603	2C	*	A21-3736-08	DRESSING PANEL	Y1	
604	2C	*	A21-3611-18	DRESSING PANEL	K1P2Y1	
604	2C	*	A21-3612-08	DRESSING PANEL	T1E1	
604	2C	*	A21-3749-08	DRESSING PANEL	KP1	
605	2C		A29-0886-28	PANEL	KP1K1	
605	2C		A29-0886-28	PANEL	P2Y1	
605	2C	*	A29-1012-18	PANEL	T1E1	
606	2C		A46-0304-18	REAR COVER	KP1K1	
606	2C		A46-0304-18	REAR COVER	P2Y1	
606	2C	*	A46-0310-08	REAR COVER	T1E1	
607	2C		A60-1260-28	PANEL	K1P2Y1	
607	2C		A60-1261-28	PANEL	KP1	
607	2C	*	A60-1457-18	PANEL	T1E1	
608	2C	*	A70-1257-08	REMOTE CONTROLLER ASSY	K1P2Y1	
608	2C	*	A70-1257-08	REMOTE CONTROLLER ASSY	T1E1	
614	2C		B10-2395-08	FRONT GLASS	K1P2Y1	
614	2C		B10-2395-08	FRONT GLASS	T1E1	
614	2C		B10-2485-08	FRONT GLASS	KP1	
615	2C		B10-2396-18	FRONT GLASS	K1P2Y1	
615	2C		B10-2396-18	FRONT GLASS	T1E1	
615	2C		B10-2456-08	FRONT GLASS	KP1	
616	2C		B12-0337-08	INDICATOR		
618	2C		B43-0302-04	KENWOOD BADGE		
-			B46-0197-00	QUESTIONNAIRE CARD	KK1	
-			B46-0310-03	WARRANTY CARD	T1E1	
-			B46-0328-03	WARRANTY CARD	KK1Y1	
-			B46-0336-03	WARRANTY CARD	P1P2	
-			B58-0513-04	CAUTION CARD (PRESET220-240)	Y1	
-			B58-0964-13	CAUTION CARD (UL)	KK1Y1	
-		*	B58-0965-13	CAUTION CARD (T,XtypePL)	T1	
-		*	B58-0966-13	CAUTION CARD (ELMtypePL)	E1	
-		*	B58-0967-03	CAUTION CARD (PtypePL)	P1P2	
-			B59-1104-00	SERVICE DIRECTORY	Y1	
-		*	B60-4078-08	INSTRUCTION MANUAL (EN)	KP1	
-		*	B60-4079-08	INSTRUCTION MANUAL (FR)	P1	
-		*	B60-4081-08	INSTRUCTION MANUAL (EN)	K1P2Y1	
-		*	B60-4081-08	INSTRUCTION MANUAL (EN)	T1	
-		*	B60-4082-08	INSTRUCTION MANUAL (FR)	P2E1	
-		*	B60-4083-08	INSTRUCTION MANUAL (IT/ES)	E1	
-		*	B60-4084-08	INSTRUCTION MANUAL (GE/NE)	E1	
621	2C	*	D39-0335-18	DAMPER		
627	1C		E30-0505-05	AUDIO CORD		
628	1E		E30-2788-05	AC POWER CORD	E1	
628	1E		E30-2789-05	AC POWER CORD	Y1	
628	1E		E30-2791-05	AC POWER CORD	T1	
628	1E	*	E30-2883-05	AC POWER CORD	KP1K1	

L : Scandinavia

K : USA

P : Canada

R : Mexico

C : China

I : Malaysia

Y : PX(Far East, Hawaii)

T : Europe

E : Europe

G : Germany

V : China(Shanghai)

Y : AAFES(Europe)

X : Australia

Q : Russia

H : Korea

M : Other Areas

Δ indicates safety critical components.

* New Parts

Parts without **Parts No.** are not supplied.

Les articles non mentionnés dans le **Parts No.** ne sont pas fournis.

Teile ohne **Parts No.** werden nicht geliefert.

②

Ref. No	Add-ress	New Parts	Parts No.	Description	Desti-nation	Re-marks
Δ 628	1E	*	E30-2883-05	AC POWER CORD	P2	
629	1C		E30-2816-05	CORD WITH PLUG		
632	1D	*	E35-2325-08	FLAT CABLE		
637	1C		F07-1613-08	COVER		
639	1E		F20-3515-08	INSULATING BOARD		
640	1E	*	F20-3525-08	INSULATING BOARD		
643	2C		G01-4026-18	TORSION COIL SPRING		
644	1D	*	G13-0595-08	CUSHION		
-		*	H10-7397-18	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-7398-18	POLYSTYRENE FOAMED FIXTURE		
-		*	H12-2401-08	PACKING FIXTURE		
-		*	H21-0353-18	PROTECTION SHEET		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)	KP1K1	
-			H25-0232-04	PROTECTION BAG (235X350X0.03)	P2Y1E1	
-			H25-0651-04	PROTECTION BAG (0232 PRINT)	T1	
-			H25-0692-04	PROTECTION BAG		
-		*	H50-3179-08	ITEM CARTON CASE	KP1	
-		*	H50-3181-08	ITEM CARTON CASE	K1P2	
-		*	H50-3182-08	ITEM CARTON CASE	Y1T1E1	
647	2E	*	J02-1416-08	FOOT (1-8200-2103-0)		
648	2D	*	J02-1414-08	FOOT (1-8200-2101-0)	KP1K1	
648	2D	*	J02-1414-08	FOOT (1-8200-2101-0)	P2Y1	
648	2D	*	J02-1415-08	FOOT (1-8200-2102-0)	T1E1	
Δ 651	1E		J42-0083-05	POWER CORD BUSHING		
652	2C		J52-0039-05	PUSH LATCH		
-			J61-0098-05	WIRE BAND		
656	2C		K29-6824-18	KNOB		
657	2C	*	K29-6885-38	KNOB		
Δ 661	2D		L07-2449-08	POWER TRANSFORMER	KP1K1	
Δ 661	2D		L07-2449-08	POWER TRANSFORMER	P2	
Δ 661	2D		L07-2450-08	POWER TRANSFORMER	Y1	
Δ 661	2D		L07-2451-08	POWER TRANSFORMER	T1E1	
CD PLAYER UNIT (X32-370X-XX)						
D13		*	B30-2546-05	LED(RED3(80)		
C1			C90-3214-05	ELECTRO	100UF	6.3WV
C2			C90-3215-05	ELECTRO	220UF	6.3WV
C3			C90-3203-05	ELECTRO	47UF	4WV
C4			CC73FSL1H270J	CHIP C	27PF	J
C5			CE04KW0J221M	ELECTRO	220UF	6.3WV
C7			C90-3203-05	ELECTRO	47UF	4WV
C8			CK73FB1E104K	CHIP C	0.10UF	K
C9			CC73FSL1H471J	CHIP C	470PF	J
C10			CC73FSL1H221J	CHIP C	220PF	J
C11			CK73FB1E104K	CHIP C	0.10UF	K
C12			CK73FB1C474K	CHIP C	0.47UF	K
C13			CK73FB1H103K	CHIP C	0.010UF	K
C14			CK73FB1H332K	CHIP C	3300PF	K
C15			CK73FB1H152K	CHIP C	1500PF	K
C16			CK73FB1H473K	CHIP C	0.047UF	K
C17			CK73EB1H104K	CHIP C	0.10UF	K
C18			C90-3214-05	ELECTRO	100UF	6.3WV

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C19, 20 C21 C22 C23 C24			CC73FCH1H070D CK73FB1H103K CK73FB1E104K CK73FB1H103K CK73FB1H333K	CHIP C 7.0PF D CHIP C 0.010UF K CHIP C 0.10UF K CHIP C 0.010UF K CHIP C 0.033UF K		
C25, 26 C27, 28 C29, 30 C31, 32 C33, 34			CE04KW0J331M CC73FSL1H151J CC73FSL1H821J CE04KW1A470M CC73FSL1H821J	ELECTRO 330UF 6.3WV CHIP C 150PF J CHIP C 820PF J ELECTRO 47UF 10WV CHIP C 820PF J		
C35 C36-38 C39 C40 C41			CK73FB1H103K CK45FF1H103Z CE04KW1E222M CK73FB1H102K CE04KW1A332M	CHIP C 0.010UF K CERAMIC 0.010UF Z ELECTRO 2200UF 25WV CHIP C 1000PF K ELECTRO 3300UF 10WV		
C42 C43 C44 C45 C46			CE04KW2A470M CK73FB1H103K CE04KW1H100M CE04KW0J331M CE04KW1C100M	ELECTRO 47UF 100WV CHIP C 0.010UF K ELECTRO 10UF 50WV ELECTRO 330UF 6.3WV ELECTRO 10UF 16WV		
C47 C48 C49 C50 C51			CE04KW1H010M CE04KW1A101M C90-3623-05 CE04KW1A470M CK73FB1H103K	ELECTRO 1.0UF 50WV ELECTRO 100UF 10WV BACK UP 0.33F 5.5V ELECTRO 47UF 10WV CHIP C 0.010UF K		
C52, 53 C54, 55 C59 C60, 61 C62			CC73FSL1H221J CK73FB1H103K CE04KW1A470M CK73FB1E104K C90-3212-05	CHIP C 220PF J CHIP C 0.010UF K ELECTRO 47UF 10WV CHIP C 0.10UF K ELECTRO 47UF 6.3WV		
C63 C64 C64 C68 C89-91			CK73FB1H103K CK73FB1H103K CK73FB1H103K CK73FB1E104K CC73FSL1H221J	CHIP C 0.010UF K CHIP C 0.010UF K CHIP C 0.010UF K CHIP C 0.10UF K CHIP C 220PF J	K1P2Y1 T1E1 T1E1	
C102 C103 C105 C105 C106			CK73FB1H223K C90-3223-05 CK73FB1C224K CK73FB1C224K CK73FF1C105Z	CHIP C 0.022UF K ELECTRO 220UF 10WV CHIP C 0.22UF K CHIP C 0.22UF K CHIP C 1.0UF Z	KP1K1 P2Y1 KP1K1	
C106			CK73FF1C105Z	CHIP C 1.0UF Z	P2Y1	
CN1 CN2 CN3 CN4 CN5			E40-4997-05 E40-4979-05 E40-3268-05 E40-3266-05 E40-3260-05	FLAT CABLE CONNECTOR PIN ASSY PIN ASSY PIN ASSY PIN ASSY		
CN9 CN10, 11 CN12, 13 CN14 J1		*	E40-4245-05 E40-3249-05 E40-3253-05 E40-4293-05 E63-1078-05	PIN ASSY PIN ASSY PIN ASSY FLAT CABLE CONNECTOR PHONO JACK	T1E1	
J2 J2 J3		*	E63-1079-05 E63-1079-05 E11-0293-05	PHONO JACK PHONO JACK MINIATURE PHONE JACK(2P)	KP1K1 P2Y1	

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P1			F10-0816-04	SHIELDING PLATE		
-			J19-5789-04	HOLDER		
L1 L4 L5, 6 X1 X2		*	L40-1001-17 L33-0558-05 L40-1001-17 L77-2226-05 L78-0615-05	SMALL FIXED INDUCTOR(10UH,K) CHOKE COIL SMALL FIXED INDUCTOR(10UH,K) CRYSTAL RESONATOR(16.9344MHZ) RESONATOR (12.5MHZ)		
X4			L78-0284-05	RESONATOR (5MHZ)		
CP1, 2 CP3 R1 R2-5 R6			R90-0875-05 R90-0479-05 RK73FB2A224J RK73FB2A683J RK73FB2A224J	MULTI-COMP 100KX15 MULTI-COMP 100KX12 CHIP R 220K J 1/10W CHIP R 68K J 1/10W CHIP R 220K J 1/10W		
R8 R9 R12 R13 R14			RK73FB2A273J RK73FB2A153J RK73FB2A203J RK73FB2A562J RK73FB2A183J	CHIP R 27K J 1/10W CHIP R 15K J 1/10W CHIP R 20K J 1/10W CHIP R 5.6K J 1/10W CHIP R 18K J 1/10W		
R17, 18 R19 R20 R21 R22			RK73FB2A153J RK73FB2A104J RK73FB2A333J RK73FB2A104J RK73FB2A105J	CHIP R 15K J 1/10W CHIP R 100K J 1/10W CHIP R 33K J 1/10W CHIP R 100K J 1/10W CHIP R 1.0M J 1/10W		
R23 R24, 25 R27 R34 R39-44			RK73FB2A103J RK73FB2A332J RK73FB2A105J RK73FB2A104J RK73FB2A103J	CHIP R 10K J 1/10W CHIP R 3.3K J 1/10W CHIP R 1.0M J 1/10W CHIP R 100K J 1/10W CHIP R 10K J 1/10W		
R45, 46 R47, 48 R49, 50 R51, 52 R53, 54			RK73FB2A432J RK73FB2A103J RK73FB2A104J RK73FB2A681J RK73FB2A102J	CHIP R 4.3K J 1/10W CHIP R 10K J 1/10W CHIP R 100K J 1/10W CHIP R 680 J 1/10W CHIP R 1.0K J 1/10W		
R55, 56 R121, 122 R123, 124 R125, 126 R127, 128			RK73FB2A223J RK73FB2A103J R92-1867-05 R92-1876-05 RK73FB2A103J	CHIP R 22K J 1/10W CHIP R 10K J 1/10W METAL 12K F 1/10W METAL 10.5K F 1/10W CHIP R 10K J 1/10W		
R131 VR1			RK73FB2A473J R12-3101-05	CHIP R 47K J 1/10W TRIMMING POT.		
S1 S2-4 S5 S6 S7-9			S70-0031-05 S70-0031-05 S70-0031-05 S70-0031-05 S70-0031-05	TACT SWITCH TACT SWITCH TACT SWITCH TACT SWITCH TACT SWITCH	K1P2Y1 KP1	
S10 S11, 12 S13-16 S17, 18 S20			S70-0031-05 S70-0031-05 S70-0031-05 S70-0031-05 S62-0070-05	TACT SWITCH TACT SWITCH TACT SWITCH TACT SWITCH SLIDE SWITCH	KP1 KP1	
S21 S22			S64-0034-05 S31-2132-05	LEVER SWITCH SLIDE SWITCH		

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Δ S23			S31-2131-05	SLIDE SWITCH (POWER TYPE)	Y1	
S19			T99-0596-05	ROTARY ENCODER		
D1~9			HSS104	DIODE		
D1~9			1SS133	DIODE		
Δ D20			D3SBA20F03	DIODE		
Δ D20			RBV-402LFA	DIODE		
Δ D21			HZS7.5S(B)	ZENER DIODE		
D21			RD7.5JS(B)	ZENER DIODE		
D22			DLM10C	DIODE		
D23			HSS104	DIODE		
D23			1SS133	DIODE		
Δ D24, 25			S5688B	DIODE		
Δ D24, 25			1SR139-400	DIODE		
D26			HZS16N(B2)	ZENER DIODE		
D26			RD16ES(B2)	ZENER DIODE		
D27			HZS20N(B)	ZENER DIODE		
D27			RD20ES(B)	ZENER DIODE		
D28			HZS11N(B2)	ZENER DIODE		
D28			RD11ES(B2)	ZENER DIODE		
D30			HSS104	DIODE		
D30			1SS133	DIODE		
D33, 34			HSS104	DIODE		
D33, 34			1SS133	DIODE		
ED1			16-MT-63GK	INDICATOR TUBE		
IC1			CXA1571M	IC(CD RF AMP)		
IC2			CXD2587Q	MOS-IC		
IC7			NJM2115M	ANALOGUE IC		
IC8			UPD784215GF541	MI-COM IC		
IC9			HM62256BLFP-8T	MEMORY IC		
IC9			W24258S-70LE	MEMORY IC		
IC10			NJM2100M	IC(OP AMPLIFIER)		
IC12			TA8409S	MOS-IC		
IC13			LB1930M	ANALOGUE IC		
IC14			UPD780204-038	MI-COM IC		
IC16			BA5979S	ANALOGUE IC		
Q1			2SA954(L,K)	TRANSISTOR		
Q2			DTC124ESA	DIGITAL TRANSISTOR		
Q2			UN4212	DIGITAL TRANSISTOR		
Q9			DTC124ESA	DIGITAL TRANSISTOR		
Q9			UN4212	DIGITAL TRANSISTOR		
Q11, 12			2SA1048(Y,GR)	TRANSISTOR		
Q11, 12			2SA1309A(Q,R)	TRANSISTOR		
Q13, 14			2SD1450(S,T)	TRANSISTOR		
Q19			2SK246(Y)	FET		
Δ Q20			2SB1165(R,S)	TRANSISTOR		
Q21			2SC2458(Y,GR)	TRANSISTOR		
Q21			2SC3311A(Q,R)	TRANSISTOR		
Δ Q22			2SA954(L,K)	TRANSISTOR		
Q23			2SC2458(Y,GR)	TRANSISTOR	KP1K1	
Q23			2SC2458(Y,GR)	TRANSISTOR	P2Y1	
Q23			2SC3311A(Q,R)	TRANSISTOR	KP1K1	
Q23			2SC3311A(Q,R)	TRANSISTOR	P2Y1	
Q24			2SA1048(Y,GR)	TRANSISTOR	KP1K1	

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Q24			2SA1048(Y,GR)	TRANSISTOR	P2Y1	
Q24			2SA1309A(Q,R)	TRANSISTOR	KP1K1	
Q24			2SA1309A(Q,R)	TRANSISTOR	P2Y1	
Δ Q25			2SB1417(P)	TRANSISTOR		
Δ Q25			2SB1640	TRANSISTOR		
Δ Q26			2SC2458(Y,GR)	TRANSISTOR		
Δ Q26			2SC3311A(Q,R)	TRANSISTOR		
Q27			DTA113ZSA	DIGITAL TRANSISTOR		
Q27			UN4119	DIGITAL TRANSISTOR		
Q28			DTA124EUA	DIGITAL TRANSISTOR		
Q28			UN5112	DIGITAL TRANSISTOR		
Q29			DTC124EUA	DIGITAL TRANSISTOR		
Q29			UN5212	DIGITAL TRANSISTOR		
A1			W02-2561-05	ELECTRIC CIRCUIT MODULE	K1P2Y1	
A1			W02-2561-05	ELECTRIC CIRCUIT MODULE	T1E1	
A2			W02-1114-05	OSCILLATING MODULE	T1E1	
MECHANISM CHANGER (MG-CH1)						
1	1D		A11-1134-08	BASE ARM		
2	1D		D10-3788-08	LEVER R		
3	1D		D12-0158-08	CAM CHANGE		
4	1E		J19-5892-08	HOLDER ARM		
5	1E		G16-0912-08	RUBBER		
6	1E		D10-3778-08	ARM DISC		
7	1E		G01-4060-08	SPG DISC H		
8	1E		J21-6576-08	PLATE ARM		
9	1D		D10-3785-08	SLIDER RACK		
10	1E		J19-5891-08	HOLDER RACK		
12	1D		D10-3787-08	LEVER CHANGE		
14	1E, 2D		T42-0920-08	MOTOR		
17	1D		D13-1856-08	GEAR D		
19	1D		D10-3781-08	LEVER HOOK A		
20	1E		D10-3782-08	LEVER HOOK B		
21	1D		D13-1857-08	GEAR E		
22	1D		S64-0038-08	LEVER SW		
24	1D		G01-4066-08	SPG LIMITER		
25	1D		J21-6579-08	PLATE LIMITER		
26	1D	*	D10-3779-18	ARM SWING		
27	2D		D13-1855-08	GEAR CAM		
28	2D		G01-4067-08	SPG CHASSIS SUB		
29	2D		J21-6573-08	PLATE LOCK		
30	2D		G01-4061-08	SPG LOCK LEVER		
31	2D	*	D10-3780-18	SLIDER CAM		
32	2D		J21-6574-08	PLATE SLIDE		
33	2D		D13-1854-08	GEAR SLIDER		
34	2D	*	D10-3786-18	LEVER STOPPER		
37	2D		J90-0854-08	GUIDE RACK		
38	1D		G01-4064-08	SPG CHANGE		
39	2D		D21-1899-08	PIN ROLLER		
40	2D		D14-0393-08	HOLDER ROLLER		
41	2D		J19-5888-08	ROLLER GUIDE		
42	2D		D21-1900-08	SHAFT MAIN		
43	2D		J19-5890-08	HOLDER SHAFT		
44	2D		J90-0856-08	GUIDE DISC		
45	1D		D32-0354-08	STOPPER DISC		

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